

COST *and* MANAGEMENT

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All Ready for a Record Season!

THIS is the time for plans for the coming season, not only in office and factory, but also in the broader educational contacts which mean so much in our progress. No one realizes, so well as the cost accountant himself, how far cost accounting has still to go to take its proper place in this country. Working individually we are greatly handicapped. There must be exchange of views and the mental stimulus that comes from association with others in the same line of work. Whether you realize that you are a little ahead of the other fellow, or a little behind him, the effect is equally valuable. Our Society helps to raise the standard of the profession, and to impress cost accounting and good management on the business community at large.

The Canadian Society of Cost Accountants is growing steadily. The addition of Winnipeg makes a fourth Chapter, which should make its contribution to our literature.

And while the membership has been at large during the summer, Chapter Executives have been busy developing programs of interest. Montreal has lined up W. H. Coverdale, the celebrated engineer, who is putting Canada Steamships back in the ranks of successful corporations, as one of its speakers. C. S. Walters, Commissioner of Income Tax, Ottawa, is another, while G. E. St. Pierre, K.C., chief solicitor of the City of Montreal; Dean Laureys, of the School of Higher Commercial Studies, University of Montreal; Past President Belanger, L. P. Lortie, Valmore Gratton and A. Bailey are also on the list. In addition, the Dominion Textile Company and the Norton Company have both undertaken to exhibit films accompanied by appropriate addresses. This looks like a well-rounded program for Montreal, and it is not yet complete. Thus far the other Chapters have not revealed their plans, but we have no doubt that the members will get some features of real interest. The finishing touches are just now being put on Toronto's programme, on which the names of several prominent accountants and business executives will appear.

THE TREND OF PRODUCTION COSTS

The Trend of Production Costs

PRODUCTION costs are moving slightly lower, according to latest information. The Government index number of commodity prices went down from 153.2 at the end of April to 150.2 at the end of June, and to 149.6 at the end of July. This index is expressed as a percentage of the 1913 average. The index just got below 150 in 1922, in 1924, and again in 1927, and then advanced to above that figure, so that average price levels are now about as low as they have been since the war.

The index for consumers' goods is 153.1, an advance over 151.5 at the end of June; this is due chiefly to advances in prices for meats and dairy products. Producers' goods, that is materials and equipment for manufacturing, are down from 150.3 to 147.8. Several important raw materials, including grain, sugar, silk, lead, silver and tin, are lower. The following is a comparison of the figures:

	July, 1927	June, 1928	July, 1928
Producers' materials (for building)	147.9	150.2	150.2
Producers' materials (for manufacturing)	147.4	147.2	143.8
Producers' materials, all	147.5	147.7	145.0
Consumers' goods (foods, beverages and tobacco)	153.1	148.6	151.5
Consumers' goods (other)	150.5	155.2	155.2
Consumers' goods, all	151.9	151.5	153.1
All commodities	152.4	150.2	149.6

In August there was a further slight decline in price levels, chiefly in grains, and flour and other milled products.

The volume of business in Canada, as measured by production and other records, is exceptionally high, and the year's grain crops are expected to set a new high record. The Dominion Government reports that statements from 6,506 firms show 1,003,085 persons employed as at August 1st, compared with 973,462 on July 1st. On the basis of these figures the employment index is 119.9, which is the highest on record. For the Prairie Provinces the greatest increase was shown, with the index number up to 137.5, while the Maritimes continue the slackest, their employment index being 105.3. These figures are percentages of employment in January, 1920.

Detail Operations of a Cost System

By RICHARD DAWSON

The Hoover Company, Ltd., Hamilton

(Before Hamilton Chapter, January 18, 1928.)

IT is often said that modern cost finding is, at best, a complex matter and it may be that after a more or less haphazard perusal of the system I am about to explain, one might be excused from thinking that the above statement is true.

However, what appears on the surface, often complex, usually becomes, after a closer study, a simple and easily operated system and so it is with the Operation Cost System. Such a system, as its name implies, is one which gives a detailed cost of each operation involved on each and every part of the product.

Every cost system, must of necessity, work in conjunction with the production system, for those which do not accomplish this fact but rather clog the machinery of production, become not a system, but merely a waste of time and effort.

The production system used in conjunction with the Operation Cost System, and one which seems to be peculiarly adapted to that system, is what is known as the Lot Order System, and an explanation of this will probably not be out of place at this juncture. In the first place a standard order quantity or lot quantity is set for each part to be manufactured, and each part is identified by a drawing or part number.

The production of parts is under the control of a chief planner whose duty it is to keep an even flow of all parts required through the factory. The dates for the issuance of lot quantities or orders for any particular part are set according to requirements, which are based on the production schedule of the number of finished articles to be built per day, per week, or per month as the case may be. If the schedule of finished articles is raised naturally either the dates for the issuance of lots are made closer or more frequent or the lot quantity is made larger (the latter seldom).

DETAIL OPERATIONS OF A COST SYSTEM

A simple card index system can easily control the dates on which lot orders for any parts should be issued.

When any part is required a lot book for that part is issued by the stores department to the department first working on this part.

The lot book is made up as follows:

The first sheet is a material order or requisition on which is stated the quantity of material to be issued to make the standard lot quantity of the particular part required. This requisition of material order is the authority for the stores department to issue this material and immediately the material is issued the requisition is detached from the lot book, is entered on the stores records and is later recorded in the stock ledger sheet concerned by the cost department. Next on the lot book comes a move order which is the authority of the stores trucker to move the material to the first department concerned.

Immediately this is done, the departmental foreman signs the move order as a witness that he has received the material and the move order is detached and placed in a box provided in each department for that purpose. The reason for this box will be shown a little later. The next form shown on the lot book is the lot ticket which is provided for the purpose of recording the date, man number, operation number and quantity operated.

Provision is also made for inspector's count showing quantity of parts passed as good, scrapped or to be salvaged and also space for rejection causes with code for rejection causes on the back of the ticket. If further work is to be done on the part another move order authorizes the transfer of the parts to the next department just as in the case of the transfer of the material from stores to the first department.

The same procedure applies in this department as in the first, that is, a lot ticket is used to record the date, man number, operation number and number of pieces operated. When work on the parts is finished the lot is transferred to the inspection department, leaving the last lot ticket still attached to the lot book.

This is done in order that the inspector may record on the lot ticket any rejections and the causes.

When the lot has been inspected the lot ticket is duly filled out and placed in the box previously referred to.

COST AND MANAGEMENT

The last form on the lot book is then a move order—to stores only. This is filled out by the Inspection Department showing the count, date, part number, part name, date received, received by, etc.

This is transferred to the stores department along with the parts and acts as a receiving slip.

The stores department enter the quantity shown on the move order in their records and it is then transferred to the cost department. The inter-department move orders previously referred to, along with the lot tickets which are placed on a box in each department, as they are finished, are collected each day by the planning department and are entered in a progress ledger.

This ledger is exactly what its name implies—a record of the date on which each lot order is issued to the factory from stores, the date on which it progresses from one department to another and the date on which the lot is completed and received by the stores department.

When a lot is issued the fact is recorded under the part number concerned and the lot is given a number which follows the previous lot under the same part number. The inter department move orders are entered as they are received, showing the date on which the lot was transferred from one department to the next and finally from the move order—to stores only, is recorded the date on which the lot is completed and the parts transferred to stores. In this manner it is possible to form a fairly accurate estimate at any time as to the amount of work in process and also in which department the work is being done at any stated time.

In cases where parts are rejected by the inspection department, these parts are either scrapped or returned for re-operation and the fact is so designated on the lot ticket.

In cases where re-operations are necessary to complete the parts satisfactorily these are returned to the department concerned accompanied by a re-operation ticket.

The same procedure follows as in the case of a straight lot order and when completed the parts are turned into stores accompanied by a move order.

The completed re-operation tickets, as in the case of completed lot tickets, are sent to the cost department. The lot tickets and re-operation tickets are sorted by part num-

DETAIL OPERATIONS OF A COST SYSTEM

bers and by lot or order number and in order as to sequence of operations. The cost department list the scrapped and re-operated parts, again by part numbers, and show, in the case of scrapped parts, the quantity and at which operation they were scrapped and in the case of re-operated parts, the quantity and the operations which were re-operated.

The scrapped parts are listed and priced and later the work in process account is credited and salvage account debited with the total value scrapped.

The place of this rejection report previously mentioned in the compilation of costs will be shown later.

In the meantime let us again refer to the move orders—to stores only, which accompany all parts being turned into stores. The quantities designated on the move orders are entered on the stores bin card and sent to the cost department for entry in the various stores ledgers.

The requisitions to store or material orders without which no material or parts can leave the stores, are deducted from the stores bin cards and then forwarded to the cost department for entry in the store ledgers. They are then priced and extended and charged to an account number.

Material on parts used directly in production are charged to the work in process account. Anything else is charged to a departmental account, the charge eventually finding its way to the departmental burden variance account.

These charges are made by means of a stores distribution journal voucher. So much for the production system.

Time Allocation

The time system used in production is mainly the ordinary piece work system, although certain operations must of necessity be performed on a day rate basis.

In addition the automatic department work is done on a machine hour burden rate, no direct labour being involved.

Foundry work differs from the ordinary production methods and the system of costing work in this department is different.

In the main production departments two different time cards are used—direct labour and indirect labour. All

COST AND MANAGEMENT

direct labour charges are made to the work in process account, indirect labour is charged to the various departmental burden variance accounts.

Time cards are filled in by the workman concerned and a glance at sample cards will fully explain this end of the system. Time cards are o.k.'d by the foreman each morning and forwarded to the cost department. The piece work rate or day rates are entered and the cards extended and are then turned over to a Burroughs machine operator. The work of this Burroughs machine is one of the most interesting phases of the system and its uses are many and varied.

At the outset it should be stated that each department is given a number so that department 2100 represents polishing department, 2300 machine department, and so on. Further, each operator is given check number and the two first numbers show the department number. For example, check number 2142 will represent an employee of the polishing department. Each and every operation is given a number also in addition to the operation name. Each department's time cards are kept separate and the first duty of the Burroughs machine operator is to list the quantity, hours and amount against each part number on a strip or ticket.

The tickets are then sorted, first by part or drawing number and then by operation number.

By means of a split keyboard and the unique make of the Burroughs machine which allows an upper and a lower counter, the total quantities, hours and earnings for the day have been posted on the cost ledger sheets and the previous total picked up and added so that we see on this sheet the total for the day, the previous balance and the total to date. The totals, by departments, repose in the upper and lower counters of the machine and they are then balanced with the totals shown on the tickets. When this is accomplished the totals are posted to the labour control sheet. Incidentally the labour control sheet is balanced daily with the payroll. When the total cards for the month have been posted and the previous month's balance (if any) picked up, the cost ledger sheets are turned over to the Cost Accountant after being stamped. In the meantime the move to the stores orders have been entered in the stores ledgers by stores accounts and also entered on the finished cost summary sheet which is explained herewith.

DETAIL OPERATIONS OF A COST SYSTEM

The cost ledger sheets are filled in with total rejections or re-operations against each operation and the balance brought down.

The total quantity finished or turned into stores are then deducted and the balance, if any, listed on the bottom line. At the same time the total burden applied on the hours worked during that month is listed and the previous balance added. The quantity operated per hour, the labour cost per hundred pieces and the burden cost per hundred pieces is worked out and listed.

From this we calculate the hours, labour and burden to be applied against the quantity finished. It is obvious only when a balance is left in process that it is necessary to do this, as if the total quantity operated are finished, the total hours, labour and burden must be applied against this quantity. It may be stated that the cost of re-operations or scrapped parts is applied against the parts finished during the month when the re-operations took place. We have previously shown that the cost of the scrapped material is absorbed into a salvage account. The re-operations are, of course, taken from the rejection report previously compiled. The cost ledger sheets are then returned to the Burroughs machine operator who lists the total labour and burden applied against the finished parts by stores and part number. It often happens that during the same month parts under the same number are returned into rough stores and also to finished stores, hence the reason for listing these figures by stores accounts.

The tapes are then turned over to the Cost Accountant who then applies the labour and burden against each part number, and by dividing first the labour and then burden by the number of parts finished, arrived at the cost of labour and burden per hundred pieces, which is the unit used.

The cost of material per hundred pieces has previously been compiled and listed on the finished cost summary sheet, then follows the total labour and burden, the labour and burden per unit, the total cost of the parts finished and the total cost per unit. A number of sub-assemblies and assemblies still have to be costed and the cost per unit of the various parts used in these sub-assemblies is listed on a detail assembly cost sheet, a sample of which is shown herewith. Complete assemblies and finished machines are costed

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in the same manner and thus the costs are built up from raw material, rough parts, finished parts, sub-assemblies, and assemblies to finished machines. When the sub-assembly, assembly and machine costs are compiled they are listed in the finished cost summary in a similar manner to the single parts. Foundry costs are compiled in a slightly different manner.

The raw aluminum obviously is of no use in its raw state so that material in this case is shown as melted metal. The cost of the aluminum scrap (if any) and fuel oil used in melting the metal are totalled and the total cost is melted metal used. This is, of course, the material used and the labour and burden costs are compiled in a similar manner to those on other parts.

Plating costs are also compiled differently, the whole expense of the plating department is charged to a burden variance account and absorbed by means of area in square inches of the parts plates.

A sample plating report, herewith, shows the part number, part name, quantity finished, area in square inches per 100 pieces and total area in square inches. The column showing total area is totalled and this figure is divided into the total burden to be applied. The unit thus arrived at is multiplied by the total area of each part finished and the burden for that part is thus applied.

The total burden to be applied is compiled by multiplying the number of productive hours by the hourly burden rate for the department. The automatic machine costs are also somewhat different inasmuch as the departmental expense for the month and is absorbed through a machine hour rate.

The time cards for this department, as will be seen from the sample herewith, differ from those used in the other departments.

These show quantities of parts finished and hours.

These are listed daily in the cost department on an automatic cost report which shows hours and quantities against each part number and in addition, idle hours and causes.

A machine hour burden rate is applied against these parts and so the total hours against any part plus the burden rate per machine hour divided by the quantity of parts, give the burden cost per unit. No labour cost is used.

DETAIL OPERATIONS OF A COST SYSTEM

From then on, these costs are handled in the manner as previously outlined for other parts. Maintenance labour is handled by means of either monthly or special works orders.

Monthly works orders are used in case of ordinary daily maintenance jobs such as sweeping or small jobs which do not require much time. Each department is, of course, given a separate works order number and all labour for the department is charged to this works order except in case of a special works order such as making of alterations to departments or any expensive job.

The monthly works orders are charged to departmental expense accounts monthly while the special works orders are charged off when completed.

The postings to the various expense accounts are made through the journal voucher system and so far as actual production costs are concerned, the work in process account is credited and the various stores or inventory accounts debited with the total value of parts finished; similarly the stores accounts are credited and the work in process account is debited with the total value of material issued from stores and used in production while the labour account is credited and work in process is debited with the direct labour and the various departmental burden variance accounts credited and work in process account debited with the total burden applied during the month. When all postings have been made to stores ledgers these are totalled and the total compared with the inventory control account shown in the general ledger. When the compilation of the costs has been completed, reports are made for executive purposes showing the material, labour and burden costs per unit of each part and also the total cost of the parts manufactured.

Detailed cost reports of main assemblies and the finished machines are made up and also the cost variation report. This variation report lists all parts which show a variation of over or under 5% over the previous month. The cost per unit is shown for both months, the difference, either over or under and a detailed reason is given for the fluctuation.

The method employed in keeping the various stock ledgers balanced with the bin cards in the stores is rather unique. Each day a set number of "balance on hand cards"

COST AND MANAGEMENT

are issued by the cost department requesting a physical count of the part numbers mentioned.

The date and even time of the count is mentioned and on the return of these cards to the cost department all records for the parts are brought up to date and the count checked with the quantity shown on the stock ledger. If there is a difference the balance on hand card shows the difference and the stores account is either credited or debited with the difference as the case may be.

(These forms are abbreviated so that the contents are shown, but not the general dimensions.)

FORM 1.—LOT BOOK

MATERIAL ORDER

To Storeskeeper—Deliver the Following: No. _____

1728

To _____ Machine _____ Dep't.

FOR ONE ITEM ONLY.

Quantity	Unit	Material	Unit Price	Amount
No. 1726				
Main Casting				
<hr/>				
Date Delivered	From Storeroom No.		Storeskeeper	
	1			
<hr/>				
Charge	Credit	Entered—Stores Ledger		
<hr/>				
In Process				
Account No. _____	Account No. _____			

MOVE ORDER

Date Moved	Quantity	Part Number	Lot Number
		1728	
Move To Machine			
<hr/>			
Department Record			
<hr/>			
Date Rec'd _____			Foreman _____

When this ticket shows on truck, move truck to Department as shown and hand this ticket to Foreman to notify him that the truck is in his department.

LOT TICKET

(Reverse Side of Lot Ticket)

CAUSES FOR REJECTIONS

REPORT CAUSES BY LETTER

THE HOOVER COMPANY LIMITED

13

FORM 3.—RE-OPERATION TICKET

[illegible]

RE-OPERATION TICKET

DATE IN		DEPARTMENT		QUANTITY		PART No.
Date	Man No.	Operation Quantity Worked	INSPECTOR'S COUNT Passed Scrap Salvage Dism'tled	REJECTIONS Quantity and Cause		
Date Out	Totals				Inspector	
KEEP TICKET WITH WORK UNTIL INSPECTED						

Labor—2501 Account No.	2500 Department No.	Machine Department	Name	Clock No.	Name
THE HOOVER COMPANY LIMITED					
Form	June 1928.	PAYROLL RECORD			
DAY	DAILY Hours	EARNINGS Amount	PICK-UP Hours	EARNINGS TO DATE Amount	MEMO.
1	139.9	11605		139.9	11605
2	74.4	5777	139.9	214.3	17382
3	126.8	10265	214.3	341.1	27647
etc.					etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable
16					16
17					17
18					18
etc.					etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable
					Cheque Number

DETAIL OPERATIONS OF A COST SYSTEM

FORM 4.—DIRECT LABOR TIME CARD

IF Night Man Clip Corner

CLOCK No.	NAME
-----------	------

Account No.	Lot or Order No.	Part No.	Operation No.	Machine or Center No.
-------------	------------------	----------	---------------	-----------------------

	Hours	Basis	Good Pieces	Rate	Amount
--	-------	-------	-------------	------	--------

F

S

Account No.	Lot or Order No.	Part No.	Operation No.	Machine or Center No.
-------------	------------------	----------	---------------	-----------------------

	Hours	Basis	Good Pieces	Rate	Amount
--	-------	-------	-------------	------	--------

F

S

Account No.	Lot or Order No.	Part No.	Operation No.	Machine or Center No.
-------------	------------------	----------	---------------	-----------------------

	Hours	Basis	Good Pieces	Rate	Amount
--	-------	-------	-------------	------	--------

F

S

Account No.	Lot or Order No.	Part No.	Operation No.	Machine or Center No.
-------------	------------------	----------	---------------	-----------------------

	Hours	Basis	Good Pieces	Rate	Amount
--	-------	-------	-------------	------	--------

F

S

Account No.	Lot or Order No.	Part No.	Operation No.	Machine or Center No.
-------------	------------------	----------	---------------	-----------------------

	Hours	Basis	Good Pieces	Rate	Amount
--	-------	-------	-------------	------	--------

F

S

TOTAL HOURS

TOTAL EARNINGS

INDICATE BASIS BY WRITING "D" FOR DAYWORK OR "P" FOR PIECE RATE.

Prefix W.O. to Order No. When Working on Works Order.

Extended

Prefix Symbol to Order No. When Working on Job Order.

Checked

Posted

O.K. Foreman

COST AND MANAGEMENT
FORM 5.—INDIRECT LABOR TIME CARD

If Night Man Clip Corner

CLOCK No.		NAME		
Hoover Form 567 Rev.				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
F				
S				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
F				
S				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
F				
S				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
F				
S				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
F				
S				
WHEN WORKING ALL DAY ON SAME JOB USE SPACE BELOW.				
Hours	Pieces	Amount	Account Number	Letter and Order No.
Work Done				
In	Out	In	Out	
			Extended	Checked Posted
Total Hours		Total Earnings		O.K. Foreman

DETAIL OPERATIONS OF A COST SYSTEM

FORM 7.—LABOR CONTROL SHEET

Control Account No.	2500 Department No.	Machine Department	Name	Clock No.	Name	
THE HOOVER COMPANY LIMITED						
Form	June 1928.	PAYROLL RECORD				
DAY	DAILY Hours	EARNINGS Amount	PICK-UP Hours	Amount	EARNINGS TO DATE Hours Amount	MEMO.
1	202.1	16578			202.1 16578	1
2	89.4	8539	202.1	16578	291.5 25117	2
3	307.8	23389	291.5	25117	599.3 48506	3
etc.						etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable	Cheque Number
16						16
17						17
18						18
etc.						etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable	Cheque Number

FORM 8.—PAYROLL SHEET (Individual)

Pay-Roll Account No.	Department No.	Department	Name	25-202 Clock No.	James Brown Name	
THE HOOVER COMPANY LIMITED						
Form	June	PAYROLL RECORD				
DAY	DAILY Hours	EARNINGS Amount	PICK-UP Hours	Amount	EARNINGS TO DATE Hours Amount	MEMO.
1	9.0	450			9.0 450	1
2	8.8	651	9.0	450	17.8 1101	2
3	12.0	950	17.8	1101	29.8 2051	3
etc.						etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable	Cheque Number
16						16
17						17
18						18
etc.						etc.
PEN IN			Total Earnings	Total Deductions	Amount Payable	Cheque Number

FORM 9.—COST LEDGER SHEET

Cost Number	4002 Account	2500 Department	1671 Part	028. Operation			
June 1928. Name		Machine	Handle	Cut to Length			
Burden Rate Per Hour			Model No. 500	Sequence No.			
Burden Date Changed	THE HOOVER COMPANY LIMITED			Operation Cost Record			
DATE	TO-DAY		PICK-UP		TOTALS TO DATE		BURDEN
	Quantity	Hours Amount	Quantity	Hours Amount	Quantity	Hours Amount	
14	550	2.5 250			550	2.5 250	
15	1671	6.8 562	550	2.5 250	2221	9.3 812	
16	2500	4.5 721	2221	9.3 812	4721	13.8 1583	

FORM 10.—FINISHED COST SUMMARY SHEET

THE HOOVER COMPANY

MONTH		May 1928	FOLIO							
Part No.	Part Name	Quantity Finished	Material Cost		Labor Cost		Burden Cost		Total Cost	Unit Cost
			Total	Unit	Total	Unit	Total	Unit		
438	Machine Screw	16000	1920	12	320	02	800	05	3040	19

FORM 11.—ASSEMBLIES DETAIL COST RECORD

[illegible]

DETAIL OPERATIONS OF A COST SYSTEM

FORM 12.—MELTED METAL COST SHEET

THE HOOVER COMPANY

ALLOY			MONTH		
Day	Virgin Aluminum	Hardener			Total Metal
1					
2					
3					
etc.					
Totals to					
Melting Room					
Add Inventory Metal					
Not Melted: Beginning					
Total					
Deduct Inventory					
Metal Not Melted: End					
Total Metal Melted					
Price					
Cost					
Cost of Metal Melted					
Foundry Scrap Inventory	This Month	Last Month	Add Decrease Deduct Increase		at
Cost of Total Metal Melted					
Melting Expense					
Total Cost of Melted Metal					
Inventory Metal in Pots	This Month	Last Month	Add Decrease Deduct Increase		at
Cost of Metal in Good Castings					
Weight Good Castings Produced		Cost of Melted Metal Per Pound Good Castings			

COST AND MANAGEMENT

FORM 13.—AUTOMATIC TIME CARD

USE ONE CARD FOR EACH MACHINE

MACHINE CARD		If Night Turn Clip	Corner
Dept. _____ Machine No. _____		Operation No. _____	
Machine Attendant Clock No. _____		Name _____	
CLOCK RECORD	Lot or order Number	Part Number	Good Pieces
F			Shut down Cause
S			

SHUT DOWN CAUSE: USE NUMBER

1 Die and Tap Setting	2 Tool Grinding and Adjusting
3 Waiting for Tools	4 Stocking Up
5 Break Down	6 Motor Trouble
7 Power Off	8 Cleaning Up
9 No Stock	10 No Orders
11	12

CHECKED _____

POSTED _____

O.K. Foreman

FORM 14.—WORKS ORDER

W.O. 3722

THE HOOVER COMPANY

Workman's Copy

Use One Order for Complete Job

Building No. Department Machine No. Charge Account No. Amount

Repairs
Additions
If Personal
Give Full Name

Description of Work to be Done

Make Sketch on Back

Approved by

Date Approved

Deliver to

Workmen will use Time Recorder to register time when starting job and when job is finished.
Return this Order to your Foreman when job is completed.
Foreman will return this copy to Cost Department.

Started _____

Finished _____

WORKS ORDER

W.O. 3722

Approved by

Date Approved

Deliver to

USE TIME RECORDER

Started _____

Finished _____

Foreman's Copy

DETAIL OPERATIONS OF A COST SYSTEM

WORKS ORDER

W.O. 3722

Production Manager's Copy

WORKS ORDER

W.O. 3722

THE HOOVER COMPANY

Cost Department Copy

[illegible]

Repairs
Additions
If Personal
Give Full Name

Description of Work

Approved by

Date Approved

Deliver to

COST SUMMARY

Department	Month	Hours	Labor Cost	Burden Cost	Material Cost	Total Cost	Total Cost To Date
------------	-------	-------	---------------	----------------	------------------	---------------	-----------------------

Date Completed

Journal Voucher No.

WORKS ORDER PROGRESS RECORD

W.O.

	Quantity	Balance		Quantity	Balance
Date	Finished	Due	Date	Finished	Due

Date of
Order
Quantity
Ordered
Date to be
Completed

MATERIAL COST DETAIL

Reference	Description	Amount	Reference	Description	Amount
-----------	-------------	--------	-----------	-------------	--------

COST AND MANAGEMENT

FORM 15.—NICKEL PLATING REPORT

April, 1928.

Part No.	Part Name	Quantity	Area in Inches per C. Pieces	Total Area	Burden Applied
664	Cord Protector Spring	750	500.00	3750.00	1.76
734	Nut, Hex.	25000	29.25	7312.50	3.44
5615	Contact Latch	8300	250.00	20750.00	9.76
5623	Tubular Rivet	35000	10.00	3500.00	1.65
5625	Tubular Rivet	11000	15.00	1650.00	.78
6681	Catch	15000	121.38	18207.00	8.57
6812	Rotor Segment	2000	75.00	1500.00	.71
6830	Lever for Catch	3000	210.00	6300.00	2.96

FORM 16.—COST VARIATION REPORT

For Month of May 1928

Finished Parts Stoves

Part Number	Part Name and Reason for Variation	Cost per 100		Variations per 100	
		This Month	Last Month	Increase	Decrease
1640	Bottom Plate		24.20	28.30	4.10
	Labor Decrease 1.60				
	Burden Decrease 2.50				
	Decrease is due to elimination of roughing and fining opera- tions on this lot.				

FORM 17.—BALANCE ON HAND CARD

To _____ Stock Room No. _____ Date _____

Description One Item Only	Part Number	Actual Quantity on Hand	Date Counted	Time of Count
				Counted by _____
	Ledger Balance _____			
	Difference _____			Storeskeeper _____

Stock Room Short	Quantity	Price	Per	Amount
	Ledger Adjusted by _____		Debit Acc't No. _____	Credit Acc't No. _____ Inventory

Stock Room Over	Quantity	Price	Per	Amount
	Ledger Adjusted by _____		Debit Acc't No. _____ Inventory	Credit Acc't No. _____

Instructions to Storeskeepers: 1—Gather All Filled Requisitions and Pin to this Card.
2—Make Careful Count of Stock and Fill in Quantity, Date and Time, then Sign.

3—Send this Card and Filled Requisitions to _____
Stores Ledger Clerk _____ Dept. _____

The Royal Battle of Volume Versus Profits

By MABEL H. DWYER

President, Typothetae Cost Accountants' Association

(From the Typothetae Bulletin)

THE royal battle of volume vs. profits—this title sounds like a prize fight—and it is a fight, not for ten rounds nor twenty rounds but for all year and year after year; and each year, in many cases, profits are getting weaker and weaker until they are almost entirely knocked out. Many business men are sitting on the side lines cheering for volume and yet the reason for a business to exist is to make profits. Volume and profits should march along hand in hand but they don't. Why? Is it because volume is obtained or taken at a price that will not permit a profit, or is it that the selling price per unit is a fair price, perhaps higher than the year before, and our manufacturing is costing too much? On a 27% increase in volume should one make a 27% increase in profit? If it can be done, it isn't, and I will venture to say that every printer says or thinks that he could do 25% more business with the same force and expenses. Are we giving the greater part of our time and attention in striving for volume and paying very little attention to the manufacturing cost? *The man with a fair selling price is going to get the volume*, but profit is going to the man who cuts the cost of production. Costs in most plants are steadily and stealthily increasing. That means that expenses are increasing or production decreasing or both. I am going to show you what a 27% increase in sales meant to one plant and why.

I have here a chart showing the Income and Operating Statements of a firm for the years 1925, 1926 and 1927.

For the year 1925 we have net sales of \$227,073.00 and profits of \$17,906.00 or 7.8% on sales; the year 1926 we have sales of \$230,212.00 or an increase of \$3,139.00 and profits of \$21,891.00, or with an increase in sales of \$3,139.00 we have an increase in net profit of \$3,985.00. The percentage of profit to sales was 9.5%. For the year 1927

COST AND MANAGEMENT

we have sales of \$288,690.00 and a profit of \$17,667.00 or 6% on sales. On an increase of \$61,617.00, or 27% in sales over 1925, we have a decrease in profit of \$239.00 from 1925 and with an increase in sales of \$58,478.00 or 25% over 1926 we have a decrease in profits of \$4,224.00. Would you as manager of that plant be satisfied with the showing for 1927? Would you analyze that statement and find out why, or just shrug your shoulders and blame it on the so-called competition that made you cut your prices.

I am using on this chart the trend percentage method. Each one of the items in the 1925 statement represents 100 and the figures of the succeeding years are converted into percentages of the 1925 figure. The theory of this method is that if expenses and sales increase at the same rate net profit will remain the same. Fixed expenses do not as a rule increase from year to year, at least should not increase at the same rate as sales, neither should a great many other expenses; if we can put our fingers on the expenses that are increasing more rapidly than sales we can take steps to remedy this and have profits. I am also showing the amounts in dollars and cents as I believe it is easier for one not accustomed to analyzing figures to see the changes and their significance quicker by dollars and cents than by percentages, although the percentages show if the items are increasing at a faster rate than the sales and you can mentally evaluate the importance of each factor by reference to the actual amounts. For instance, an increase in an expense of \$100.00 to \$200.00 represents a percentage figure of 200%, whereas an item increasing from \$10,000.00 to \$12,000.00 represents only 120%. And yet one is an increase of only \$100.00 while the other is an increase of \$2,000.00. Merely to consider trend percentages alone would lead to absurd conclusions. It is trend percentages with relative importance of the actual items themselves that comprises the complete procedure.

Let us take the year 1926 and compare it with 1925. The sales increased to 101% and so all expenses could increase to 101% and we would make the same profit as in 1925. The materials dropped to 98%, giving us a slight advantage. The first group of expenses are the Fixed. We will take them one by one and then as a group.

Rent and heat decreased \$1,500.00 or to 82%. That is rather unusual. The heat is the unknown quantity but a decrease of \$1,500.00 in heat alone seems too much. How-

ROYAL BATTLE OF VOLUME VERSUS PROFITS

ever, as decreases work in our favour we won't try to find out why this is, but if I were manager of that plant I would know the reason for it.

Insurance—here is another item that decreased, but only \$200.00 or to 81%. I would also know the reason for that.

Taxes—here we have our first increase and Detroiters will know that this is perfectly o.k.

Depreciation — an increase to 125% or practically \$1,100.00. This can only mean that we have bought new equipment, unless we have changed depreciation rates, but as this is a standard plant I know that the rates were not changed. The total Fixed expenses for the year decreased \$422.00 or in other words, dropped to 97% in comparison with 1925.

The first item of current expenses is factory wages. Note that this decreased practically \$3,300.00 or to 94%. We have more sales and less factory wages.

Power and light increased slightly while spoilage decreased \$1,000.00 but direct department expense increased \$1,000.00. This increase in direct department expense is too much and should be looked into. However, our total current expense for the year was over \$3,000.00 less than in 1925 or a percentage figure of 94%, and as a result our gross profit for the year is \$8,024.00 higher on an increase in sales of \$3,139.00. That is the result of reducing factory costs.

In the Administrative division the executive salaries remain the same but the office salaries increased practically \$2,000.00. This is really too much to result from increases, so it looks like an extra clerk. What do you think of that? More office force for a \$3,139.00 increase in sales. It is hard to justify from the figures here. On the general and office expense together we have a decrease of about \$150.00 and a slight decrease in the shipping. On the total administrative expense we have an increase of about \$1,800.00 and a percentage of 104%.

Selling Expense group shows an increase in each item and a total increase of over \$2,000.00, or to 125%. An increase in sales of 1%—an increase in selling expense of 25%.

So we sum up 1926 as follows—on an increase in sales of \$3,139.00 we had an increase in gross profit of \$8,024.00 but we lost \$1,800.00 of that by an increase in administra-

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tive expenses and \$2,000.00 by an increase in selling expense, leaving us an increase in the net profit of about \$4,000.00. We cut the cost of manufacture but lost one-half of the saving in the front office and selling.

For 1927 we have an increase in sales of \$61,617.00 over 1925 or to 127% and the materials used have kept pretty well up with this increase or to 125%.

In the Fixed Expenses, rent and heat have increased to 110%, insurance to 108%, taxes to 158% and depreciation to 139%. Notice taxes increased each year, and also depreciation. We evidently have bought more equipment. The total fixed expenses increased \$3,300.00 over 1925 and \$3,700.00 over 1926, or to 121%, using 1925 as a base.

In the Current Expenses factory wages increased 124% or at about the same rate as sales. Power and light show an increase, while spoilage drops below 1925 but increases over 1926 and the department direct expense, while it increases over 1925, is less than in 1926. The total current expense increased \$13,103.00 or to 122% over 1925. On an increase in sales of \$61,617.00 over 1925 we have an increase in gross profits of \$22,788.00. Or practically \$39,000.00 of our increase in sales has been used up in an increased cost to manufacture.

In the Administrative Expense for 1927, I believe there has been a switch made from office salaries to executive, because if you total the two of them they are about equal for the two years. However, both general and office expense increased, general expense about \$3,000.00 and office expense \$700.00 over 1925. I have no way of tracing these two items down to see what caused these increases but executives of this plant should know the reason for it. Altogether, general administrative expense increased about \$6,400.00 over 1925 or to 118%, not as fast as sales or fixed or current expenses.

Selling Expense—salaries and commissions increased almost \$17,000.00 over 1925 or to 375%. Selling and travelling expense increased about \$600.00 or to 142% while advertising and auto expense are both lower. The total selling expense increased \$16,500.00 over 1925 or to 284%.

So the increase in general administrative expense of \$6,400.00 and \$16,500.00 in selling more than eats up our increase in gross profits of \$22,788.00, leaving us with less net profit than in 1925 which had \$61,617.00 less sales.

ROYAL BATTLE OF VOLUME VERSUS PROFITS

Increased costs, or costs increasing at a faster rate than sales, ate up all the profit and the largest increase of all is in selling expense.

There are a couple of questions I would like to ask: Do you think the increase in fixed expenses is justified? Do you think that factory wages should increase as fast as the sales? And the increase in general and office expense \$3,700.00, does it not seem rather out of the way? Selling salaries and commissions—almost four times the 1925 figure and over three times the 1926 figure.

I believe your reaction to the small profit in 1927 on the larger volume will be that a lower price was obtained. I thought so too until I analyzed it. I am going to use something now that I have never used in public before although making use of it in my own analytical work in the office, and I hope I can make this clear to you.

Printing consists of catalogs, booklets, office forms, posters, etc., when completed but really what we sell are

COMPARISON OF SALES AND EXPENSES 1925-26-27:

	1925	Per- cent- age	1926	Per- cent- age to 1925	1927	Per- cent- age to 1925
Net Sales	\$227,073	100	\$230,212	101	\$288,690	127
Materials Used	89,277	100	87,934	98	111,662	125
Fixed Expense						
Rent and Heat	8,766	100	7,235	82	9,669	110
Insurance	1,033	100	834	81	1,120	108
Taxes	1,022	100	1,202	117	1,619	158
Depreciation	4,506	100	5,634	125	6,251	139
Total Fixed Expense	15,327	100	14,905	97	18,659	121
Current Expense						
Factory Wages	51,102	100	47,859	94	63,536	124
Power and Light	1,368	100	1,499	109	1,901	139
Spoilage	3,233	100	2,215	68	2,576	80
Direct Department Expense	3,794	100	4,804	126	4,597	121
Total Current Expense	59,497	100	56,377	94	72,610	122
Total Factory Cost	164,102	100	159,217	97	202,931	123
Gross Profit	62,970		70,994		85,758	
Administrative Expense						
Executive Salaries	21,000	100	21,000	100	25,715	122
Office Salaries	6,605	100	8,621	130	4,555	69
General Expense	3,210	100	3,534	110	6,212	193
Office Expense	2,063	100	1,582	77	2,742	133
Shipping	3,174	100	3,083	97	3,255	102
Total Administrative Expense	36,052	100	37,820	104	42,479	118
Selling Expense						
Salaries and Commissions	5,983	100	6,904	115	22,470	375
Selling and Traveling Expense	1,279	100	1,600	125	1,819	142
Advertising	1,114	100	1,799	162	716	64
Auto Expense	636	100	979	154	606	95
Total Selling	9,012	100	11,282	125	25,611	284
Total Selling & Administrative	45,064	100	49,102	108	68,091	151
Net Profit	17,906		21,891		17,667	
	7.8%		9.5%		6.0%	

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materials and sold hours. You may add in there sometimes, ideas, imagination, service, etc., but really the materials and the sold hours come out of our plants in the form of catalogs, booklets, etc. But we have hours of a widely different value—composing room hours, press room hours and bindery hours, but they have a certain relationship to one another. In Detroit, if you take the yearly composite hour costs over a period of at least three years you will find that a composing room hour is about 3.4 times the value of a hand bindery hour and a small job press 1.7 times a bindery hour. So if you like to give the bindery hour a value of one unit, to bring the composing room hours down to units equal to the bindery hours you will have to multiply them by 3.4 and the small job press hour by 1.7 to bring them to units. In other words let us bring them all to a common denominator. I have worked out these unit values for all departments, small Miller, large Miller, small cylinder, medium cylinder, larger cylinder, cutter, folder, etc., based on the composite for three years, 1925-1926-1927. After that the total hours of each department for the year for this plant were gathered and multiplied by the figure to bring them to units and then the units added. Upon doing this I find that this plant produced for 1925—92,599 units, 1926—85,890 units and 1927—98,921 units.

The total cost for the year is known, if we subtract the cost of the materials for each year from the total cost we will have the cost of the units, which divided by the number of units for the year will give us the cost per unit. If you do this you will find the cost per unit for 1925 was \$1.29, for 1926—\$1.40 and for 1927—\$1.61.

We had less units in 1926 than in 1925 and a lower total cost but the materials were less than in 1925, and this made the unit cost higher or \$1.40. We had an increase of over 6,000 units in 1927 over 1925, but in spite of that our unit cost increased to \$1.61 on account of the expenses increasing. A comparison of the hour costs of this firm for the years 1925, 1926 and 1927 shows an increasing hour cost, further bearing out this increased cost per unit. The composition hour cost for the year 1925 was \$5.01 and for the year 1927, \$6.27.

Now to get our selling price per unit. We have the total sales figures; if we deduct our materials it will give us the selling price of our units and divided by the units for

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the year, the selling price per unit for each year. Doing this we find the selling price per unit for the year was as follows—1925—\$1.49; 1926—\$1.66; and 1927—\$1.79.

The reason for the low profit in 1927 was not a lower selling price per unit, because it was 13c higher per unit than in 1926 and 30c higher than in 1925 but *increased cost per unit*. The increase in unit cost of 1926 over 1925 was 11c, but 1927 increased 21c over 1926 and 32c over 1925.

In other words we did not have a large enough increase in units produced in 1927 over 1925 to warrant the large increase in expense. And to prove this to you in another way here are the hours by departments for 1925 and 1927:

	1925	1927
Composition	8,399.0	8,145.0
Job Presses	11,981.5	12,234.2
Cylinder Presses	7,598.1	7,487.9
Folders	1,797.4	1,012.2
Cutters	1,382.1	1,742.1
Bindery	6,534.2	12,768.6

The only increases are in cutting and bindery departments and these increased hours cost us \$39,471.00.

I believe this same thing is true in many plants. You are asking more from your customers each year as a sales price. You are giving less and demanding more. Selling prices are coming down in other lines. Automobiles are cheaper to-day than they were three years ago and the automobile companies, many of them, are making more money than ever before. Our selling prices are going up instead of down, but costs are increasing at a faster rate, in many instances entirely wiping out profits. If your salesmen have

	1925	1926	1927
UNITS	92,599	85,890	98,921
COST PER UNIT			
Total Cost	\$209,166.00	\$208,319.00	\$271,022.00
Materials	89,277.00	87,934.00	111,662.00
	<u>\$119,889.00</u>	<u>\$120,385.00</u>	<u>\$159,360.00</u>
Cost per Unit	\$1.29	\$1.40	\$1.61
SELLING PRICE PER UNIT			
Sales	\$227,073.00	\$230,212.00	\$288,690.00
Materials	89,277.00	87,934.00	111,662.00
	<u>\$138,796.00</u>	<u>\$142,278.00</u>	<u>\$177,028.00</u>
Selling Price per Unit	\$1.49	\$1.66	\$1.79

to sell at an increased price each year are they going to be able to continue to get business? Are you being fair to your salesmen in asking them to get increased prices each year?

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If this printer came into competition in 1927 with a price based on what he sold for in 1925 would he be apt to call it "cut-throat" competition or not?

Because you think profit comes with volume many of you have your eyes and mind so firmly fixed on volume that you are overlooking the cost entirely. Watch your costs, have a fair selling price and it will be much easier to get volume and profit.

POSITIONS WANTED

(Address replies c/o Canadian Society of Cost Accountants, 81 Victoria St., Toronto.)

Number 270—Industrial Engineer, thoroughly experienced in production work in England and in the United States, including electrical lines and rubber plants, seeks position in Canada. At present residing in Toronto. Address Box Number 270, The Canadian Society of Cost Accountants, 81 Victoria Street, Toronto.

Number 271—Wanted by junior accountant, experienced in payroll and other branches, position in cost department. Good references.

Number 272—General Accountant, with some experience in cost work and with good knowledge of the subject, wants opening in cost department. Capable of installing and operating cost system for small concern.

Number 273—Position in Toronto wanted by cost and production man with nearly twenty years' experience. At present engaged in responsible position, in charge of costs and production.

POSITIONS AVAILABLE

(Address replies to Number —, c/o The Canadian Society of Cost Accountants, 81 Victoria Street, Toronto.)

Number 106—Office manager wanted for textile plant in large Western Ontario town. Office staff of ten. Must be capable of supervising a standard cost system.

TORONTO PLANT VISIT

Through the courtesy of C. H. Black and his associates, a party of Toronto members of the Society visited the plant of the Dunlop Tire and Rubber Goods Company, Ltd., on June 21st. The attendance was not large, as the date rather encroached on holiday season, but an instructive time is reported.

CANADIAN SOCIETY OF COST ACCOUNTANTS
CANADIAN SOCIETY OF COST ACCOUNTANTS

MEMBERSHIP, SEPTEMBER 1, 1928

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Black, C. H., 37 Thornecliffe Ave., Toronto.
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Burdett, R. A., 108 Mutual St., Toronto.
Carruthers, J. E., Durant Motors of Can., Ltd., Leaside.
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Dunlop, J. A., 80 Constance St., Toronto.
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Edwards, J. E., Dominion Paper Box Company, Ltd., Toronto.
Eells, J. E., 153 Dufferin St., Toronto.
Elkington, P. W., 47 Yonge St., Toronto.
Elliott, F. E., Toronto Carpet Mfg. Co., Ltd., Toronto.
Elliott, J., 75 Jackman Ave., Toronto.
English, J. J., C.A., Clarkson, Gordon & Dilworth, Toronto.
Faux, Claud, 1020A St. Clair Ave. West, Toronto.
Ferguson, W. S., C.A., 28 Kilbarry Road, Toronto.
Forrester, W. J., 300 Commonwealth Bldg., Toronto.
Fraser, W. C., 64 Awde St., Toronto.
Grant, E. D., 240 Ashworth Ave., Toronto.
Greer, C. A., C.A., 702 Federal Bldg., Toronto.
Guilfoyle, H. E., C.A., 15 Wellington St. W., Toronto.
Gunn, Edmond, F.C.A., 25 Toronto St., Toronto.
Hamlin, E. L. B., 77 Stibbard Ave., Toronto.
Harper, E. W., C.A., 420 Federal Bldg., Toronto.
Harris, J. S., 52 Bloem Ave., Fairbank, Toronto.
Hetherington, H. M., 14-32 Alpine Ave., Toronto.
Higgins, F. P., F.C.A., 36 Toronto Street, Toronto.
Hillman, H. P. L., C.A., 68 Rosedale Heights, Toronto.
Houston, G. H., 201 Carlaw Ave., Toronto.
Howard, A. G., Lincoln Meter Co., Ltd., Toronto.
Hubbard, L. E., International Business Machines Co., Ltd., Toronto.
Jamieson, H. T., F.C.A., 1405 Royal Bank Bldg., Toronto.
Jardine, T. S., United Drug Co., Ltd., Toronto.
Joly, J. H., 10 Front St. W., Toronto.
Keegan, J. P., Trusts & Guarantee Co., Toronto.
Lane, W. M., Lever Bros., Ltd., Toronto.
Lang, B. W., Box 158, Mimico.
Leaver, G. F., C.A., Clarkson, Gordon, Dilworth, Guilfoyle & Nash, Toronto.
Macdonald, A., Bank of Nova Scotia, 39 King St. W., Toronto.
MacDougall, R. A., 1131 Bloor St. W., Toronto.
Mapp, K. A., C.A., 28 Scott St., Toronto.
Marrow, T. H., 29 Rusholme Road, Toronto.
Merson, Geo. O., C.A., 347 Bay St., Toronto.
Merson, H. S., C.A., 510 Royal Bank Bldg., Toronto.
Millar, D. L., F. N. Burt Co., Ltd., Toronto.

COST AND MANAGEMENT

Mitchell, L. W., The T. Eaton Co., Ltd., Toronto.
 Muir, Jas., Income Tax Department, Lombard St., Toronto.
 McCaffrey, W. A., Office Specialty Mfg. Co., Ltd., Newmarket.
 McKee, J. M., International Business Machines, Ltd., Toronto.
 McPherson, R. S., 1018 Federal Bldg., Toronto.
 McQuillan, H. J., S. F. Stinson & Son, Toronto.
 Nash, A. E., C.A., 15 Wellington St. W., Toronto.
 Newth, R. W., Canada Printing Ink Co., Ltd., Toronto.
 Oaten, R., The Gurney Foundry Co., Ltd., Toronto.
 Patterson, C. A., 24 Evelyn Crescent, Toronto.
 Patton, D. C., 183 George St., Toronto.
 Pelling, C. H., C.A., 16 Swanwick Ave., Toronto.
 Pendock, K. G., C.G.A., Lincoln Pulp & Paper Company, Ltd., Merrit-
 ton, Ont.
 Perrin, H., C.A., 15 Wellington St. W., Toronto.
 Peters, G. A., C.A., 422 Federal Bldg., Toronto.
 Pidduck, J. R., Neptune Meter Co., Ltd., Toronto.
 Pierdon, W. G., 35 Langley Ave., Toronto.
 Pointon, E. T., C.A., Edwards, Morgan & Co., Toronto.
 Rae, Alan M., Massey-Harris Co., Ltd., Toronto.
 Reynolds, G. C., 64 Natalie St., Toronto.
 Roberts, C. P., C.A., J. P. Langley & Company, Toronto.
 Scott, E. D., Marlatt Leather Co., Oakville, Ont.
 Shepard, A. B., C.A., Thorne, Mulholland, Howson & McPherson,
 Toronto.
 Shepherd, A. B., C.A., 1603 Royal Bank Bldg., Toronto.
 Shiach, H. A., C.A., 863 Bay St., Toronto.
 Smith, R. S., Baldwin's Steel Corp., Ltd., Toronto.
 Spence, J. W., Canadian Kodak Co., Ltd., Toronto.
 Taylor, R. B., The Rowntree Co., Ltd., Toronto.
 Taylor, W. D., F.C.A., 15 Wellington St. W., Toronto.
 Tidy, A. R., 562 Ontario St., Toronto.
 Turner, Jas., C.A., The T. Eaton Co., Ltd., Toronto.
 Vanstone, F. S. C.A., Clarkson, Gordon, Dilworth, Guilfoyle & Nash,
 Toronto.
 Wade, Osler, F.C.A., 38 King St. W., Toronto.
 Weir, Thos., C.A., 15 Wellington St. W., Toronto.
 Williams, W. F., C.A., 499 College St., Toronto.
 Williamson, R., F.C.A., 863 Bay St., Toronto.
 Wright, L. V., 244 Bay St., Toronto.
 Young, D. M., C.A., 1405 Royal Bank Bldg., Toronto.
 Young, R. E., F.C.A., 297 Bay St., Toronto.

MONTREAL CHAPTER

Archambault, J. A., 30 St. Jacques St., Montreal.
 Baker, E. C., 392 St. James St., Montreal.
 Ballantyne, A., C.A., Marwick, Mitchell & Co., Montreal.
 Belanger, L., C.P.A., 1527 Crescent St., Montreal.
 Bernier, L. P., 4116 Rue St. Hubert, Montreal.
 Booth, Wilfrid, 735 Wellington St., Montreal.
 Bowden, Geo. T., The Steel Co. of Canada, Ltd., Montreal.
 Brown, W. M., Canadian Explosives, Ltd., Montreal.
 Burton, Geo. E., Room 619, Power Bldg., Montreal.
 Cameron, D. A., 83 Craig St. W., Montreal.
 Cameron, J. S., 121 Shearer St., Montreal.
 Campbell, W. S., 609 Victoria Ave., Westmount, Montreal.
 Carpentier, J. E., 232 St. James St., Montreal.
 Caron, E., Dominion Tax Office, Montreal.
 Carswell, Wm., C.A., Northern Electric Co., Montreal.

CANADIAN SOCIETY OF COST ACCOUNTANTS

- Cole, A. W., C.A., 164 St. James Street, Montreal.
 Cotret, J. H. R. de, 103 Notre Dame St., Three Rivers.
 Cox, M. M., C.A., Nesbitt, Thomson & Co., Ltd., Montreal.
 Davies, E. W., 10 Victoria Sq., Montreal.
 Dempster, Jas., C.A., 512 Power Bldg., Montreal.
 DeTilley, Armand, 1192 St. Catherine St. E., Montreal.
 Douglas, Hugh, Federated Press, Ltd., Montreal.
 Farish, D. M., C.A., 121 Shearer St., Montreal.
 Fernie, Frank, 225 Kensington Ave., Westmount, Montreal.
 Fillion, J. A., C.A., 3426 Avenue Laval, Montreal.
 Fontaine, C. R., Dominion Tax Office, Montreal.
 Giguere, A., 4400 Marquette St., Montreal.
 Gowan, A. A., C.A., 17 St. John St., Montreal.
 Grondin, Ludovic J., Franklin Montreal Motors, Ltd., Montreal.
 Heald, J. L., Dominion Bridge Co., Ltd., Lachine, Que.
 Hemming, H. K. S., C.P.A., C.G.A., 3436 Durocher St., Montreal.
 Henderson, Geo., Comptroller, Wayagamack Pulp & Paper Co., Ltd.,
 Three Rivers.
 Henderson, J. D., 253 Clifton Ave., Montreal.
 Hirsch, A. T., 51 Durocher St., Montreal.
 Hodgson, G. W., C.A., 750 Maplewood Ave., Montreal.
 Holmes, Wilfrid, 54 Victoria Ave., Montreal South.
 Howell, W. M., 330 Claremont Ave., Westmount, Montreal.
 Hutchison, Jas., F.C.A., 80 St. Francois Xavier St., Montreal.
 Johnson, R. R., Henry Birks & Son, Ltd., Montreal.
 Jones, W. S., C.A., 606 Shaughnessy Bldg., 157 McGill St., Montreal.
 Kerrin, H., L.A., C.P.A., 5980 Park Ave., Montreal.
 King, F. J., 56 Old Orchard Ave., Notre Dame De Grace, Montreal.
 Leroux, G. C., 3696 Mentana St., Montreal.
 Loiseau, E. J., 1790 Queen Mary Road, Hampstead, Montreal.
 Lortie, L. P., 436 West Hill Ave., Montreal.
 Louthood, R. W., Canada Power and Paper Corporation, Ltd., Mont-
 real.
 MacDonald, Ross, 121 Shearer St., Montreal.
 Masterson, J. P., 731 Querbes Ave., Outremont.
 More, W. W., 3312 Adams Street, Montreal.
 McCrudden, H. E., 4250 Dorchester St., Montreal.
 McElroy, F. C., 284 Parthenais St., Montreal.
 McIver, F. M., Canadian Car & Foundry Co., Ltd., Montreal.
 McKee, J. E., 1-3 Notre Dame St. W., Montreal.
 O'Keefe, T. F., 3649 Durocher St., Apt. 11, Montreal.
 Ostrander, N., 24 Royal Ave., Montreal, Que.
 Painchaud, L. P., Buckley, Drouin Co., Ltd., Montreal.
 Patton, D. R., C.A., R. Schurman & Co., Montreal.
 Peckham, S. B., C.A., P. S. Ross & Sons, Montreal.
 Peto, L. A., Canadian Car & Foundry Co., Ltd., Montreal.
 Petrie, A. J. M., 120 St. James St., Montreal.
 Pollack, James K., 811-a Lacombe Ave., Montreal.
 Racine, C. R., C. E. Frost & Co., Montreal.
 Renaud, V., 880 St. Catherine St. W., Montreal.
 Rhodes, L., Consolidated Lithograph Manufacturing Company, Ltd.,
 Montreal.
 Robitaille, E., 180 Rue St. Jacques, Montreal.
 Rosevear, James J., 606-7 Shaughnessy Bldg., Montreal.
 Rowland, A. H., 29 Cote des Neiges Road, Montreal.
 Scott, G. W., C.A., 152 Notre Dame St. W., Montreal.
 Smith, Robert, 125 Kenaston Ave., Mount Royal, Que.
 Sugars, Prof. R. M., School of Commerce, McGill University, Mont-
 real.

COST AND MANAGEMENT

Thompson, R. R., C.A., 487 Argyle Ave., Westmount, Que.
Thorpe, T. C., T. Eaton Co., Ltd., Montreal.
Tremblay, C., Ayers, Ltd., Lachute Mills, Que.
Turcot, Wilfrid, Central Y.M.C.A., Montreal.
Turner, W. H., 1640 Ducharme Ave., Outremont, Montreal.
Vroom, H. H., 121 Shearer St., Montreal.
Whittaker, Geo., 1122 Beaver Hall Hill, Montreal.
Whitten, C. E., Canadian Paperboard Co., Ltd., Montreal.
Williams, James, Maritime Fish Corp., Ltd., Montreal.
Woodall, W. T., 206A Transportation Bldg., Montreal.
Wright, P. W., 31 Brock Ave. South, Montreal West.

HAMILTON CHAPTER

Bell, D. H., Tallman Brass & Metal Co., Ltd., Hamilton.
Conway, J. J., 21 Main St. E., Hamilton.
Davison, E. W., Mewburn & McHaffie, Hamilton.
Dickson, B. H., Dominion Glass Co., Ltd., Hamilton, Ont.
Donald, Geo. E., Canada Wire & Iron Goods Co., Hamilton, Ont.
Finck, A. J., Moto-Meter Company, Ltd., Hamilton.
Goudy, J. E., 106 Blake St., Hamilton.
Gourlay, A. J., 13 Central Ave., Hamilton.
Keen, A. E., C.A., 501 Bank of Hamilton Bldg., Hamilton.
Le Brocq, S. E., The Steel Co. of Canada, Hamilton.
Long, M.I., C.A., 809 Canadian Bank of Commerce Chambers, Hamilton.
Love, R. E., The Hoover Co., Ltd., Hamilton.
Matchett, M. W., E. D. Smith & Sons, Ltd., Hamilton.
Meeke, G. D., Otis-Fensom Elevator Co., Ltd., Hamilton.
Osborne, A. E., Laidlaw Bale-Tie Co., Ltd., Hamilton.
Richardson, S. G., C.A., 501 Canadian Bank of Commerce Chambers, Hamilton.
Robins, S. W., Hamilton Hydro-Electric Comm., Hamilton.
Ross, H. M., Mercury Mills, Ltd., Hamilton.
Scott, C. S., F.C.A., Spectator Bldg., Hamilton.
Smith, G. E. F., 601 Can. Bank of Commerce Chambers, Hamilton.
Tallman, H. R., 58 Delaware Ave., Hamilton.
Thompson, E. B., Duncan Lithographing Co., Ltd., Hamilton.
Walkinshaw, A. H., E. T. Wright Co., Ltd., Hamilton.
Watson, C. S., 23 Homewood Ave., Hamilton.
Wigle, C. E. Howell Litho Co., Hamilton.

WINNIPEG, MAN.

Davies, Joseph Morgan, Geo. A. Touche & Company, Winnipeg.
Gilbert, F. C., C.A., 905 Electric Railway Chambers.
Hoover, H. M., John Scott & Company, Winnipeg.
Laird, W. C., C.A., 905 Electric Railway Chambers.
Latter, H., Vulcan Iron Works, Ltd.
Morden, H. J., C.A., 236 Curry Bldg., Winnipeg.
Mundell, W. J., Ogilvie Flour Mills Co., Ltd.
Parton, John, C.A., 400 Great West Permanent Bldg.
Phare, G. A., Royal Crown Soaps, Ltd.

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Payne, H. E. M., J. D. Shier Lumber Co., Ltd.

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DOLBEAU, QUE.

Evans, John Glynne, Lake St. John Power & Paper Co.

DRUMMONDVILLE, ONT.

Eddy, J. C., 176 Lindsay St.

DUNNVILLE, ONT.

Haywood, L. J., Monarch Knitting Co., Ltd.

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McCannel, M. C., 210 McLeod Bldg.
Nicholson, R. H., The E. C. D. Co., Ltd.
Patriquin, H. O., 431 Tegler Bldg.
Thomson, E. D. C., 408 Tegler Bldg.

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O'Carroll, F. X., Staff House.

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Walker, C. E., Queen's University.

KITCHENER, ONT.

Tailby, Ernest, L.A., Canadian Bank of Commerce Chambers.

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OTTAWA, ONT.

Clark, A. S., 114 Wellington St.

QUEBEC, QUE.

Buzzell, L. M., 138 St. Peter St.
Wilkie, J. H., Price Bros. & Co., Ltd.

SHERBROOKE, QUE.

Brooks, B. E., P.O. Box 729.

SMITH'S FALLS, ONT.

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COST AND MANAGEMENT

VANCOUVER, B.C.

Field, Fred, 510 Hastings Ave. W.
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Smith, Walter H., 612 Board of Trade Bldg., Pender St. W.
Walkden, W. E., 612 Board of Trade Bldg., Pender St. W.

VICTORIA, B.C.

Hinton, H. G., Geo. A. Touche & Co.

WINDSOR, ONT.

Fitzgerald, A. S., 3 Ouellette Ave., Suite 201.

WOODSTOCK, ONT.

McEwen, Alfred, Canada Furniture Manufacturers, Ltd.

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Clark, W. C., Gurney Foundry Co., Ltd., Toronto.
Davis, J. C., International Business Machines, Ltd., Toronto.
Harcombe, F. J., Dunlop Tire & Rubber Co., Toronto.
Hodgson, W. R., Canadian Kodak Co., Ltd., Mount Dennis, Toronto.
Layzell, R., Sangamo Electric Co., Ltd., Toronto.
Robertson, W. A., Lever Bros., Ltd., Toronto.
Roe, M. J., Sangamo Electric Co., Ltd., Toronto.
Rowe, J. A. W., Canadian Kodak Co., Ltd., Mount Dennis, Toronto.
Steel, G. E., Sangamo Electric Co., Ltd., Toronto.
Sweeting, A. E., Gurney Foundry Co., Ltd., Toronto.
Warnes, C., Canadian Kodak Co., Ltd., Mount Dennis, Toronto.

MONTREAL CHAPTER

Bailey, Alfred, 121 Shearer St., Montreal.
Campbell, R. B., Northern Electric Company, Ltd., Montreal.
Greenfield, F. J., Steel Company of Canada, Montreal.
Harrison, Dent, Jr., P. S. Ross & Sons, Montreal.
Latimer, J. M., 3844 Newmarch St., Verdun, Quebec.
McNeil, E. C., Northern Electric Co., Ltd., Montreal.
Paterson, John, 80 St. Francois Xavier St., Montreal.
Ramsay, A. F., 326 Brock Ave., Montreal West.
Swayne, A. A., Steel Co. of Canada, Montreal.
Wilson, W. M., Northern Electric Company, Ltd., Montreal.

HAMILTON CHAPTER

Badeau, N. F., Dominion Glass Co., Ltd., Hamilton.
Bechill, N. V., International Harvester Co. of Canada, Ltd., Hamilton.
Berquist, C. W., Hamilton Hydro-Electric Comm., Hamilton.
Croucher, P., 14 Webber Ave., Hamilton, Ont.
Dawson, R., The Hoover Co., Ltd., Hamilton.
Ferguson, J., Moto-Meter of Canada, Ltd., Hamilton.
Green, S. H., Canada Wire & Iron Goods Co., Hamilton.
Hansford, R., The Hoover Co., Ltd., Hamilton.
Lee, F. A., The Hoover Co., Ltd., Hamilton.
Prior, P. G., Wagstaffe, Ltd., Hamilton.
Race, F. C., International Harvester Co. of Can., Ltd., Hamilton.
Smith, Norman, O. T., Hamilton Hydro-Electric Comm., Hamilton.
Sparham, W. C., International Harvester Co. of Can., Ltd., Hamilton.
Willrich, A. T., Tallman Brass & Metal, Ltd., Hamilton.
Woolman, C. N., International Harvester Co. of Can., Ltd., Hamilton.

VANCOUVER

Willis, Maurice, Union Oil Company of Canada, Ltd., Vancouver.

